What Is Claimed Is:

1. A process for the preparation of a carboxylic acid salt by dehydrogenation of a primary alcohol, the process comprising:

contacting an alkaline mixture comprising said primary alcohol with a dehydrogenation catalyst, said catalyst comprising a copper-containing active phase at the surface thereof and a supporting structure that is resistant to deformation under the conditions of the dehydrogenation reaction.

2. A process as set forth in claim 1 wherein said supporting structure comprises a non-brittle material that has a yield strength of at least about 100 MPa.

3. A process as set forth in claim 2 wherein said supporting structure comprises a metal sponge containing at least about 15% by weight non-copper metal and at least about 10% by weight copper.

4. A process as set forth in claim 2 wherein the active phase at the surface of said catalyst comprises at least about 50% by weight copper.

5. A process as set forth in claim 4 wherein said active phase contains less than about 1% by weight of a metal oxide other than cuprous oxide.

6. A process as set forth in claim 4 wherein said active phase contains less than about 1% by weight of cuprous oxide.

7. A process as set forth in claim 4 wherein said active phase contains at least about 1% by weight of a supplemental metal selected from the group consisting of chromium, titanium, niobium, tantalum, zirconium, vanadium, molybdenum, manganese, tungsten, cobalt, nickel, bismuth, tin, antimony, lead, and germanium, and mixtures thereof.

8. A process as set forth in claim 2 wherein said supporting structure comprises a metal containing at least about 10% by weight non-copper metal.

9. A process as set forth in claim 8 wherein said catalyst comprises a metal sponge.

10. A process according to claim 8, wherein said non-copper metal comprises metal having a reduction potential which is less than about +343 mVolts vs. NHE.

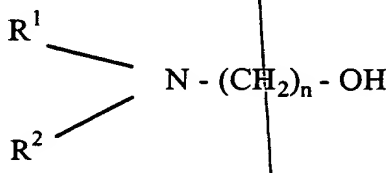
11. A process according to claim 8, wherein said metal support comprises at least about 10% by weight of a non-copper metal selected from the group consisting of nickel, zinc, tin, cobalt and iron, or a combination thereof.

12. A process as set forth in claim 8 wherein said catalyst comprises a surface stratum comprising said active phase, said surface stratum containing between about 0.005 and about 0.5 grams of copper per gram of said supporting structure.

13. A process as set forth in claim 8 wherein said catalyst comprises a metal sponge support having deposited thereon a copper-containing outer stratum.

14. A process as set forth in claim 8 wherein said catalyst comprises a particulate catalyst, the particles of which have the structure of claim 2.

15. A process according to claim 8, wherein said primary alcohol comprises a compound corresponding to the formula:



(I),

wherein n is an integer ranging from 2 to 20; and R^1 and R^2 are independently hydrogen, hydrocarbyl, or substituted hydrocarbyl.

16. A process according to claim 8, wherein said carboxylic acid salt comprises an alkali metal salt of (a) iminodiacetic acid, (b) glycine, or (c) an N-alkyl-glycine.

17. A process according to claim 8, wherein said process further comprises phosphonomethylating said carboxylic acid salt to form N-(phosphonomethyl) iminodiacetic acid or a salt thereof.

18. A process according to claim 17, wherein said process further comprises oxidizing said N-(phosphonomethyl)iminodiacetic acid to N-(phosphonomethyl) glycine or a salt thereof.

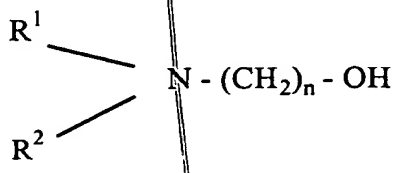
19. A process as set forth in claim 2 wherein the catalyst comprises a metal sponge and said supporting structure comprises at least about 10% by weight non-copper metal and from about 2% to about 30% by weight copper.

20. A process as set forth in claim 19 wherein said catalyst comprises a surface stratum comprising said active phase, said surface stratum containing between about 0.005 and about 0.5 grams of copper per gram of said supporting structure.

21. A process as set forth in claim 19 wherein said catalyst comprises a metal sponge support having deposited thereon a copper-containing outer stratum.

22. A process as set forth in claim 19 wherein said catalyst comprises a particulate catalyst, the particles of which have the structure of claim 2.

23. A process according to claim 19, wherein said primary alcohol comprises a compound corresponding to the formula:



(I),

wherein n is an integer ranging from 2 to 20; and R^1 and R^2 are independently hydrogen, hydrocarbyl, or substituted hydrocarbyl.

24. A process according to claim 23, wherein R^1 and R^2 are independently hydrogen; $-(CH_2)_x-(CH_3)_m$, x being an integer ranging from 0 to about 19, m being either 1 or 2; $-(CH_2)_y-OH$, y being an integer ranging from 1 to about 20; $(CH_2)_z-COOH$, z being an integer ranging from 1 to about 19; or phosphonomethyl.

25. A process according to claim 24, wherein n is 2; R^1 is hydrogen; and R^2 is hydrogen, hydrocarbyl, or substituted hydrocarbyl.

26. A process according to claim 25, wherein R^2 is hydrocarbyl.

27. A process according to claim 26, wherein R^2 is $-(CH_2)_x-(CH_3)_m$.

28. A process according to claim 27, wherein R^2 is $-CH_3$.

29. A process according to claim 23, wherein said primary alcohol is selected from the group consisting of monoethanolamine, diethanolamine, and triethanolamine.

30. A process according to claim 23, wherein said process further comprises phosphonomethylating said carboxylic acid salt to form N-(phosphonomethyl) iminodiacetic acid or a salt thereof.

31. A process according to claim 30, wherein said process further comprises oxidizing said N-(phosphonomethyl)iminodiacetic acid to N-(phosphonomethyl) glycine or a salt thereof.

32. A process as set forth in claim 19, wherein the supporting structure of said metal sponge comprises at least about 50% by weight non-copper metal.

33. A process according to claim 32, wherein said non-copper metal comprises metal having a reduction potential which is less than about +343 mVolts vs. NHE.

34. A process according to claim 33, wherein said supporting structure comprises at least about 50% by weight of a non-copper metal selected from the group consisting of nickel, zinc, tin, cobalt and iron, or a combination thereof.

35. A process according to claim 34, wherein said supporting structure comprises at least about 50% nickel.

36. A process according to claim 34, wherein said supporting structure comprises at least about 50% cobalt.

37. A process as set forth in claim 2 wherein said catalyst has a substantially homogeneous structure containing at least about 15% by weight non-copper metal and at least about 10% by weight copper.

38. A process as set forth in claim 2 wherein said catalyst comprises a monophasic alloy containing at least about 15% by weight non-copper metal and at least about 10% by weight copper.

39. A process as set forth in claim 2 wherein said catalyst has a heterogeneous structure comprising a support comprising a metal containing at least about 10% by weight non-copper metal and a surface active phase containing at least about 50% by weight copper.

40. A process as set forth in claim 2 wherein said supporting structure comprises a metal sponge containing at least about 15% by weight non-copper metal and at least about 10% by weight copper.

41. A process as set forth in claim 2 wherein said catalyst comprises a surface stratum comprising said active phase, said surface stratum containing between about 0.005 and about 0.5 grams of copper per gram of said supporting structure.

42. A process as set forth in claim 2 wherein said catalyst comprises a metal sponge support having deposited thereon a copper-containing outer stratum.

43. A process as set forth in claim 42 wherein said outer stratum is deposited by a method comprising electrochemical displacement reaction between a metal of said support and copper ions.

44. A process as set forth in claim 42 wherein said outer stratum is deposited by a method comprising electroless plating of copper metal on said metal sponge support.

45. A process as set forth in claim 2 wherein said catalyst comprises a particulate catalyst.

46. A process according to claim 2, wherein said process further comprises phosphonomethylating said carboxylic acid salt to form N-(phosphonomethyl) iminodiacetic acid or a salt thereof.

47. A process according to claim 46, wherein said process further comprises oxidizing said N-(phosphonomethyl)iminodiacetic acid to N-(phosphonomethyl) glycine or a salt thereof.

48. A process according to claim 2, wherein said process further comprises collecting the hydrogen produced by the dehydrogenation reaction and transferring said hydrogen to a fuel cell for the production of electric power.

49. A process for the preparation of a carboxylic acid salt by dehydrogenation of a primary alcohol, the process comprising:

contacting an alkaline mixture comprising said primary alcohol with a dehydrogenation catalyst, said catalyst comprising a metal sponge comprising a copper-containing active phase at the surface thereof and a supporting structure that contains at least about 10% by weight non-copper metal.

50. A process as set forth in claim 49 wherein the copper content of said surface active phase exceeds the copper content of said supporting structure.

51. A process as set forth in claim 50 wherein said surface active phase contains at least about 50% by weight copper and said supporting structure contains at least about 15% by weight non-copper metal.

52. A process as set forth in claim 50 wherein said supporting structure contains between about 2% and about 30% by weight copper.

53. A process according to claim 52, wherein said non-copper metal comprises metal having a reduction potential which is less than about +343 mVolts vs. NHE.

54. A process according to claim 52, wherein said metal support comprises at least about 10% by weight of a non-copper metal selected from the group consisting of nickel, zinc, tin, cobalt and iron, or a combination thereof.

55. A process as set forth in claim 52 wherein said catalyst comprises a surface stratum comprising said active phase, said surface stratum containing between about 0.005 and about 0.5 grams of copper per gram of said supporting structure.

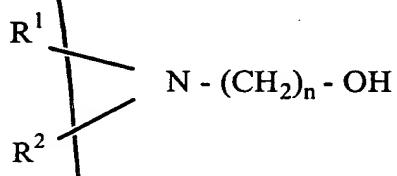
56. A process as set forth in claim 52 wherein said catalyst comprises a metal sponge support having deposited thereon a copper-containing outer stratum.

57. A process as set forth in claim 56 wherein said outer stratum is deposited by a method comprising electrochemical displacement reaction between a metal of said support and copper ions.

58. A process as set forth in claim 56 wherein said outer stratum is deposited by a method comprising electroless plating of copper metal on said metal sponge support.

59. A process as set forth in claim 52 wherein said catalyst comprises a particulate catalyst.

60. A process according to claim 52, wherein said primary alcohol comprises a compound corresponding to the formula:



(I),

wherein n is an integer ranging from 2 to 20; and R^1 and R^2 are independently hydrogen, hydrocarbyl, or substituted hydrocarbyl.

61. A process according to claim 60, wherein R^1 and R^2 are independently hydrogen; $-(CH_2)_x-(CH_3)_m$, x being an integer ranging from 0 to about 19, m being either 1 or 2; $-(CH_2)_y-OH$, y being an integer ranging from 1 to about 20; $(CH_2)_z-COOH$, z being an integer ranging from 1 to about 19; or phosphonomethyl.

62. A process according to claim 61, wherein n is 2; R^1 is hydrogen; and R^2 is hydrogen, hydrocarbyl, or substituted hydrocarbyl.

63. A process according to claim 62, wherein R^2 is hydrocarbyl.

64. A process according to claim 63, wherein R^2 is $-(CH_2)_x-(CH_3)_m$.

65. A process according to claim 64, wherein R^2 is $-CH_3$.

66. A process according to claim 65, wherein said primary alcohol is selected from the group consisting of monoethanolamine, diethanolamine, and triethanolamine.

67. A process as set forth in claim 50 wherein said catalyst has a substantially homogeneous structure containing at least about 10% by weight non-copper metal and at least about 15% by weight copper.

68. A process as set forth in claim 50 wherein said catalyst comprises a monophasic alloy containing at least about 10% by weight non-copper metal and at least about 15% by weight copper.

69. A process as set forth in claim 50 wherein said catalyst comprises a surface stratum comprising said active phase, said surface stratum containing between about 0.005 and about 0.5 grams of copper per gram of said supporting structure.

70. A process as set forth in claim 50 wherein said catalyst comprises a metal sponge support having deposited thereon a copper-containing outer stratum.

71. A process as set forth in claim 70 wherein said outer stratum is deposited by a method comprising electrochemical displacement reaction between a metal of said support and copper ions.

72. A process as set forth in claim 70 wherein said outer stratum is deposited by a method comprising electroless plating of copper metal on said metal sponge support.

73. A process as set forth in claim 50 wherein said catalyst comprises a particulate catalyst.

74. A process according to claim 50, wherein said process further comprises phosphonomethylating said carboxylic acid salt to form N-(phosphonomethyl) iminodiacetic acid or a salt thereof.

75. A process according to claim 74, wherein said process further comprises oxidizing said N-(phosphonomethyl)iminodiacetic acid to N-(phosphonomethyl) glycine or a salt thereof.

76. A process according to claim 50, wherein said process further comprises collecting the hydrogen produced by the dehydrogenation reaction and transferring said hydrogen to a fuel cell for the production of electric power.

77. A process for making a salt of disodium iminodiacetic acid, the process comprising contacting a dehydrogenation catalyst with an aqueous mixture comprising an alkali metal hydroxide and diethanolamine, wherein:

said catalyst comprises a copper-containing active phase at the surface of a metal support, said metal support comprising at least about 50% by weight of a non-copper metal selected from the group consisting of nickel, cobalt, iron and tin, or a combination thereof.

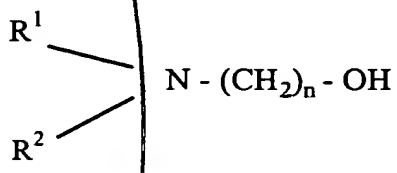
78. A process as set forth in claim 77 wherein said metal support is a metal sponge support.

79. A process as set forth in claim 77, wherein said active phase at the surface of said metal support comprises at least about 50% by weight copper.

80. A process according to claim 77, wherein said metal support comprises at least about 50% by weight nickel.

81. A process according to claim 77, wherein said metal support comprises at least about 50% by weight cobalt.

82. A process according to claim 77, wherein said primary alcohol comprises a compound corresponding to the formula:



(I),

wherein n is an integer ranging from 2 to 20; and R^1 and R^2 are independently hydrogen, hydrocarbyl, or substituted hydrocarbyl.

83. A process according to claim 77, wherein said carboxylic acid salt comprises an alkali metal salt of (a) iminodiacetic acid, (b) glycine, or (c) an N-alkyl-glycine.

84. A process according to claim 77, wherein said process further comprises phosphonomethylating said carboxylic acid salt to form N-(phosphonomethyl) iminodiacetic acid or a salt thereof.

85. A process according to claim 84, wherein said process further comprises oxidizing said N-(phosphonomethyl)iminodiacetic acid to N-(phosphonomethyl) glycine or a salt thereof.

86. A process according to claim 77, wherein said process further comprises collecting the hydrogen produced by the dehydrogenation reaction and transferring said hydrogen to a fuel cell for the production of electric power.

87. A process according to claim 77, wherein said metal sponge support further comprises about 2% to about 30% by weight copper metal.

88. A process according to claim 87, wherein said catalyst comprises a surface stratum comprising said active phase, said surface stratum containing between about 0.005 to about 0.5 grams of copper per gram of said metal sponge support.

89. A process according to claim 87, wherein said metal sponge support has deposited thereon a copper-containing outer stratum.

90. A process according to claim 87, wherein said process further comprises phosphonomethylating said disodium iminodiacetic acid salt to form N-(phosphonomethyl) iminodiacetic acid or a salt thereof.

91. A process according to claim 90, wherein said process further comprises oxidizing said N-(phosphonomethyl)iminodiacetic acid to N-(phosphonomethyl) glycine or a salt thereof..

92. A process according to claim 87, wherein said process further comprises collecting the hydrogen produced by the dehydrogenation reaction and transferring said hydrogen to a fuel cell for the production of electric power.

93. A process for making a salt of a carboxylic acid, the process comprising contacting a catalyst with an alkaline mixture comprising a primary alcohol, wherein:

said catalyst is characterized as being formed by a process comprising depositing a copper-containing active phase on the surface of a metal sponge support, said metal sponge support comprising at least about 60% by weight of a non-copper metal and about 2% to about 30% by weight copper.

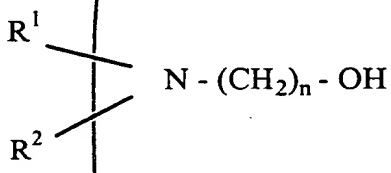
94. A process according to claim 93, wherein said catalyst comprises a surface stratum comprising said copper-containing active phase, said surface stratum containing between about 0.005 to about 0.5 grams of copper per gram of said metal sponge support.

95. A process as set forth in claim 93 wherein said catalyst has a copper-containing outer stratum deposited thereon.

96. A process according to claim 95, wherein said non-copper metal comprises metal having a reduction potential which is less than about +343 mVolts vs. NHE.

97. A process according to claim 95, wherein said copper-containing outer stratum is deposited by a method comprising electrochemical displacement reaction between a metal of said support and copper ions.

98. A process according to claim 93, wherein said primary alcohol comprises a compound corresponding to the formula:



(I),

wherein n is an integer ranging from 2 to 20; and R^1 and R^2 are independently hydrogen, hydrocarbyl, or substituted hydrocarbyl.

99. A process according to claim 93, wherein said carboxylic acid salt comprises an alkali metal salt of (a) iminodiacetic acid, (b) glycine, or (c) an N-alkyl-glycine.

100. A process according to claim 93, wherein said process further comprises phosphonomethylating said carboxylic acid salt to form N-(phosphonomethyl) iminodiacetic acid or a salt thereof.

101. A process according to claim 100, wherein said process further comprises oxidizing said N-(phosphonomethyl)iminodiacetic acid to N-(phosphonomethyl) glycine or a salt thereof.

102. A catalyst composition comprising a metal sponge comprising a copper-containing active phase at the surface thereof and a supporting structure that contains at least about 10% by weight non-copper metal.

103. A catalyst as set forth in claim 102 wherein said supporting structure comprises a non-brittle material that has a yield strength of at least about 100 MPa.

104. A catalyst as set forth in claim 103 wherein the active phase at the surface of said catalyst comprises at least about 50% by weight copper.

105. A catalyst according to claim 103, wherein said non-copper metal comprises metal having a reduction potential which is less than about +343 mVolts vs. NHE.

106. A catalyst according to claim 103, wherein said metal support comprises at least about 10% by weight of a non-copper metal selected from the group consisting of nickel, zinc, tin, cobalt and iron, or a combination thereof.

107. A catalyst as set forth in claim 103 wherein said supporting structure comprises at least about 10% by weight non-copper metal and from about 2% to about 30% by weight copper.

108. A catalyst as set forth in claim 107, wherein the supporting structure of said metal sponge comprises at least about 50% by weight non-copper metal.

109. A catalyst according to claim 108, wherein said non-copper metal comprises metal having a reduction potential which is less than about +343 mVolts vs. NHE.

110. A catalyst according to claim 108, wherein said supporting structure comprises at least about 50% by weight of a non-copper metal selected from the group consisting of nickel, zinc, tin, cobalt and iron, or a combination thereof.

111. A catalyst according to claim 110, wherein said supporting structure comprises at least about 50% nickel.

112. A catalyst according to claim 110, wherein said supporting structure comprises at least about 50% cobalt.

113. A catalyst as set forth in claim 103 wherein said catalyst has a substantially homogeneous structure containing at least about 10% by weight non-copper metal and at least about 15% by weight copper.

114. A catalyst as set forth in claim 103 wherein said catalyst comprises a monophasic alloy containing at least about 10% by weight non-copper metal and at least about 8% by weight copper.

115. A catalyst as set forth in claim 103 wherein said catalyst has a heterogeneous structure comprising a support comprising a metal containing at least about 10% by weight non-copper metal and a surface active phase containing at least about 50% by weight copper.

116. A catalyst as set forth in claim 103 wherein said supporting structure comprises a metal sponge containing at least about 15% by weight non-copper metal and at least about 10% by weight copper.

117. A catalyst as set forth in claim 103 wherein said catalyst comprises a surface stratum comprising said active phase, said surface stratum containing between about 0.005 and about 0.5 grams of copper per gram of said supporting structure.

118. A catalyst as set forth in claim 103 wherein said catalyst comprises a metal sponge support having deposited thereon a copper-containing outer stratum.

119. A catalyst as set forth in claim 118 wherein said outer stratum is deposited by a method comprising electrochemical displacement reaction between a metal of said support and copper ions.

120. A catalyst as set forth in claim 118 wherein said outer stratum is deposited by a method comprising electroless plating of copper metal on said metal sponge support.

121. A catalyst as set forth in claim 103 wherein said catalyst comprises a particulate catalyst.

122. A catalyst composition comprising a metal sponge support, wherein said catalyst is characterized as being produced by a process comprising depositing a copper-containing active phase on the surface of a metal sponge support containing at least about 60% by weight non-copper metal and from about 2% to about 30% by weight copper metal.

123. A catalyst according to claim 122, wherein said non-copper metal comprises metal having a reduction potential which is less than about +343 mVolts vs. NHE.

124. A catalyst according to claim 123, wherein said copper-containing active phase is deposited onto the surface of said metal sponge support by a method comprising an electrochemical displacement reaction of the metal of the support with copper ions.

125. A catalyst according to claim 122, wherein said metal sponge support contains at least about 60% by weight of a non-copper metal selected from the group consisting of nickel, zinc, tin, cobalt and iron, or a combination thereof.

126. A catalyst according to claim 122, wherein said metal sponge support contains at least about 60% by weight nickel.

127. A process for making an oxidation catalyst, the process comprising depositing a copper-containing active phase onto the surface of a metal support comprising at least about 10% of a non-copper metal and from about 2% to about 30% copper.

128. A process according to claim 127, wherein said process further comprises contacting said metal support with a reducing agent before depositing said copper-containing active phase.

129. A process according to claim 127, wherein said non-copper metal comprises metal having a reduction potential which is less than about +343 mVolts vs. NHE.

130. A process according to claim 127, wherein said copper-containing active phase is deposited onto the surface of said metal support by a method comprising an electrochemical displacement reaction of the metal of the support with copper ions.

131. A process according to claim 130, wherein said process comprises conducting said electrochemical displacement reaction under basic conditions.

132. A process according to claim 131, wherein said process further comprises conducting said electrochemical displacement reaction under acidic conditions.

133. A process according to claim 127, wherein said copper-containing active phase is deposited onto the surface of said metal support by a method comprising electroless plating.

134. A process according to claim 133, wherein said copper-containing active phase is deposited onto said surface of said metal support in the presence of a chelating agent.

135. A process according to claim 134, wherein said chelating agent is an amine.

136. A process according to claim 134, wherein said chelating agent is nitrilotriacetic acid or a salt thereof.

137. A process according to claim 134, wherein said chelating agent is ethylenediaminetetraacetic acid or a salt thereof.

138. A process according to claim 133 wherein said copper-containing active phase is deposited onto said surface of said metal support in the presence of a non-aqueous solvent.